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TITLE: Gateway system and associated method

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*allocat ?*

*reserve space in queue 30  
or 40  
based upon request.*

Brief Summary Text - BSTX (18):

In one embodiment, where the first of the plurality of requests is a service activation request for a subscriber associated with the second party, the processing step comprises validating the first service activation request in accordance with the calling features and coverage areas as authorized in the contract between the first and second parties. The processing step may also include examining the first service activation request for errors, such as syntax errors. In the event the first service activation request is validated (e.g., valid), the processing step may further comprise the step of activating, deactivating or changing a subscriber's service using internal systems associated with the first party. In the event that the service activation request is invalid (e.g., requests outside provision of contract), the processing step may further include logging the service activation request into the contract violations database for further review by the first party and sending an error message to the second party, or alternatively, electing not to send an error message to the second party. In any event, the processing step may include the step of generating a response to the

service activation  
request, the response indicating that the requested service  
has been approved  
and activated, disapproved, or had errors in the request.  
The step of  
responding may thus include sending a response or message  
to the second party  
via corresponding queues of the first and second queue  
systems, the queues  
being different than those used to send and receive  
requests for service  
activation.

Brief Summary Text - BSTX (19):

In instances where the first of the plurality of  
requests concerns a trouble  
report request from the second party, the processing step  
may include  
validating the first trouble report request with at least a  
first of the  
plurality of conditions or provisions in the contract  
between the parties. In  
this regard, the validating step concerns ensuring only  
authorized coverage  
areas and authorized features are investigated and  
statused, as delineated in  
the contract between the first and second parties. The  
processing step may  
also include examining the first trouble report request for  
errors, such as  
syntax errors. In the event such first trouble report is  
valid, the processing  
step may further include the step of statusing the trouble  
using internal  
systems associated with the first party and generating at  
least a first status  
response related to the first troubler report request, and  
the step of  
responding to the first trouble report includes sending at  
least one status  
response to the second party on another pair of  
corresponding queues of the  
first and second queue systems. If the first trouble  
report is invalid, the  
processing step includes logging such violation into a  
contracts violations  
database for further review by the first party and

generating an appropriate response thereto, and the step of responding includes sending an appropriate response to the second party utilizing the pair of corresponding queues of the first and second queue systems. Of course, the first party may elect not to send any response to the second party in such instances.

Brief Summary Text - BSTX (20):

In another embodiment, the method includes the steps of processing at least one of at least a first call detail record corresponding to a call initiated by or terminated to a first subscriber associated with the second party and a first abnormal condition report relating to services which may affect service for subscribers of a particular reseller, such as the second party, validating the first call detail record or the first abnormal condition report and sending the first call detail record or the first abnormal condition report to the second party reseller via another pair of queues of the first and second queue system associated with the first and second parties. In instances where the method involves at least a first call detail record, for purposes of traceability, the processing step can include the step of assigning a unique serial number and/or time/date stamp to the call detail record. The step of validating the first call detail record can include the steps of determining the particular reseller to which the first subscriber, per the subscriber's numbering plan area and office code (i.e., NPA NXX) is associated, validating the switch identification in accordance with the spectrum basic trading area, and validating the base station utilized for the call. The step of processing the first abnormal condition report may include receiving information relating to a present or anticipated outage and service areas and

features affected by such outage from internal systems associated with the first party. In such circumstances, the step of validating includes determining which of the particular resellers (e.g., second party) on contract with the first party are affected by the particular outage. In this regard, at least a first message may be then be generated and sent (e.g., transmitted) to the affected resellers, such as the second party, via, for example, the above-identified pair of queues of the first and second queue systems associated with the first and second parties. In this regard, the present invention facilitates the exchange of information affecting service to subscribers of the second party.

Detailed Description Text - DETX (5):

Generally, and referring to FIGS. 1-2, the first and second queue systems 30, 40 include a plurality of queues for exchanging information from one queue to another corresponding queue. First and second queue systems 30, 40 contain a corresponding number of queues, whereby a first 31 of the plurality of queues of the first queue system 30 correspond to a first 41 of the plurality of queues of the second queue system 40. Further, messages exchanged between corresponding queues only travel in one direction. In this regard, a first trouble report request or message from the second party concerning service problems relating to at least one subscriber associated with the second party may be forwarded from the second party to the trouble report request queue 41 which forwards the message (e.g., trouble report request) to the first party and specifically, to the corresponding first queue 31 for receiving trouble report requests from the second party's first queue 41 of the second queue

system 40. Upon receipt of the first trouble report request in the first trouble report request queue 31 of the first queue system 30, the first trouble report request is forwardable to (e.g., via a processor 70) or otherwise retrievable by the validation processor 50 (e.g., via processor 70), which is capable of validating the request in accordance with the contract between the first and second parties. In this regard, the validation processor 50 is capable of accessing data corresponding to contract provisions in the validation database 52 to compare the request with, for example, information concerning authorized coverage areas and calling features, as delineated in the contract between the first and second parties (which will be described in more detail hereinbelow). If valid, such trouble report may then be forwarded (e.g., via an SQL NET) to a trouble report system 60 associated with the first party for tracking and statusing of the trouble reports. Upon a change in the status or date, the trouble report system 60 generates a message statusing the trouble report request, such message being routable to the second queue 32 of the first queue system 30 by the processor 70, the message being retrievable by the second party from the second queue 42 of the second queue systems 40. If invalid the processor 70 may forward the invalidated trouble report request to a contract violations database 54 associated with the validation processor 50 for further processing and review by the first party, and may or may not send the error response to the second party. In the event the first party elects to send an error message to the second party indicating such request was invalid, the first party may transmit such information to the second party via the trouble report error queue 39, which is retrievable by the second party on the

corresponding trouble report error queue 49.

Detailed Description Text - DETX (7):

In instances where a first subscriber associated with the second party initiates a call or a call is otherwise terminated to the first subscriber utilizing the telecommunications systems and services (e.g., PCS wireless services) contemplated by the contract between the first and second party, a billing processor 66 internal to the first party processes a first call detail record corresponding to such call and forwards such call detail record to the validation processor 50 of the present invention to verify such call was made in accordance with the parameters of the contract between the first and second parties. In this regard, the validation processor 50 is capable of flagging fraudulent use of calling features and coverages not contained or authorized by the contract between the first and second parties (which will be described in more detail hereinbelow). Typically, the billing processor 66 associated with the first party is an internal system which is capable of assigning and affixing a unique serial number and processing date/time stamp to each call detail record, which facilitates subsequent retrieval and resend of a particular call detail record at the request of the second party reseller. The billing processor 66 may be in communication with the validation processor 50 and/or the first queue system 30 via a separate queue system. Call detail records generated by the billing processor 66 are sendable to the second party on a fifth 35 of the plurality of queues of the first queue system 30 for sending call detail record and is receivable on a corresponding fifth 45 of the plurality of queues of the second queue system 40, for receiving call detail

record and are also storable in a billing archive 68. In certain circumstances, such as when a switch restarts or when there is an anomaly in the first party's network, a suspicious or corrupt call detail record may result. In such instances, the suspect call detail record may be forwarded to the second party on yet another queue 51 of the first queue system 30 and received by the second party on a corresponding queue 61 of the second queue system 40.

Detailed Description Text - DETX (11):

Upon receipt of at least the first request on corresponding queues of the first queue system (e.g., first queue for service activation requests, second queue for trouble report requests), the methodology contemplates validating the request, and specifically the message contained therein, with one or more provisions of the contract between the parties. In this regard, the method of the present invention also includes the step of validating at least the first request with at least a first provision of the contract, whereby data relating to the contract is storable in a validation database. The method of the present invention may also include validating at least the first request for syntax errors. If the first request is validated (which will be described in more detail hereinbelow), the method of the present invention further includes the step of processing at least the first request to generate a first response thereto, and acting upon such request. For example, in instances where the first request included a service activation request for a first subscriber, and such first request is valid, the first party may thereafter activate the service requested (or, conversely, deactivate, or change the service, depending

upon the request), and send the first response indicating such activation was approved to the second party on another queue (e.g., a third queue) of the first queue system, the first response being receivable (i.e., retrievable) by the second party on a corresponding queue (e.g., a third) of the second queue system. In instances where the first service activation request was invalid (e.g., included errors), the method of the present invention includes the step of sending such invalid first service activation request to a contract violations database for later review by the first party. In addition, the method also includes transmitting the invalid first service activation request to the second party via corresponding queues of the first and second queue systems or, alternatively, electing not to transmit such invalid request to the second party.

Detailed Description Text - DETX (13):

In another embodiment, the method of the present invention is directed to providing call detail reports to the second party to enable the second party to bill subscribers associated with the second party who have initiated calls which utilized the services and/or systems of the first party. In one embodiment, illustrated in FIGS. 3A-3B, the method of the present invention concerns processing at least a first call initiated by or terminated to a first subscriber associated with the second party to generate a first call detail record, validating the first call detail record associated with the first subscriber and, if valid, archiving the first call detail record for future reference and sending the first call detail record to the second party on a separate queue (e.g., a fifth queue) of the first queue system, the first call



detail record for the first subscriber's call being receivable (e.g., retrievable) by the second party on a corresponding queue (e.g., a fifth queue) of the second queue system accessible by the second party. The steps of processing the first call initiated by a first subscriber associated with the second party to generate the first call detail record, validating the first call detail record in accordance with the contract between the parties and sending the first call detail record to the second party utilizing the queue systems of the present invention may be accomplished immediately after the first call is completed, to thereby provide the second party reseller with real time call detail records for their subscriber billing. In addition, for purposes of facilitating the retrieval of call detail records, for example, upon request by the second party, the processing step includes assigning a unique serial number and/or time/date stamp with each call detail record. In this regard, if an error is discovered by the second party and/or the second party wishes to have the first call detail record resent, the second party's message for the first resend request can include the unique serial number and/or time/date stamp to enable the first party to retrieve the first call detail record from the billing archive systems associated with the first party. In this regard, if errors exist, the second party can send a first resend request for the first call detail record to the first party on another queue (e.g., a sixth queue) of the second queue system, the first resend request for the first call detail record being receivable (e.g., retrievable), on a corresponding queue (e.g., a sixth queue) of the first queue system associated with the first party. Thus, the method of the present invention further

includes, in instances where a first resend request has been received by the first party on a sixth queue of the first queue system, retrieving the first call detail record from the billing archives and resending the first call detail record to the second party on another queue (e.g., a seventh queue) of the first queue system, the resent first call detail record being receivable (e.g., retrievable) by the second party on a corresponding queue (e.g., a seventh queue) of the second queue system. In the event there are errors in a call detail record or a call detail record is otherwise incomplete (e.g., due to switch restart or anomaly in network), the method includes the step of sending or transmitting on yet another queue of the first queue system to a corresponding queue of the second queue system accessible by the second party a call detail record which is incomplete or has errors.

Detailed Description Text - DETX (14):

In another embodiment of the method of the present invention, the method is directed to informing the second party of any abnormal conditions in the first party's telecommunications systems and/or services to enable the second party to notify its subscribers of such abnormal conditions. For example, in instances where the first party's system has experienced a network outage, the method of the present invention allows the first party to notify the second party on a timely basis. In this regard, and referring to FIGS. 3A-3C, the method includes the steps of the first party processing an abnormal condition to generate a first abnormal condition report, validating the first abnormal condition report, and sending the first abnormal condition report to the second party on another queue (e.g., an eighth queue) of the first queue system, the

first abnormal condition report being receivable (e.g., retrievable) by the second party on a corresponding queue (e.g., an eighth queue) of the second queue system. The step of processing the first of the plurality of abnormal condition reports can include the step of receiving reports from internal systems associated with the first party, the reports directed to outages and changes in services. The step of validating the abnormal condition report includes determining which of a plurality of resellers such abnormal condition affects (e.g., the second party) and which particular coverage areas and/or switches are affected. If a second party is validated, meaning subscribers relating thereto could be affected by the particular abnormal condition, the step of responding includes sending an abnormal condition report to the second party on the eighth queue of the first queue system, the report being receivable on the corresponding eighth queue of the second queue system. If the second party is not validated, meaning subscribers associated with the second party are not affected by the particular abnormal condition, no response or abnormal condition report is forwarded to the second party.

Claims Text - CLTX (8):

a trouble report processor associated with said first queue system, for processing said first of said plurality of trouble report requests received from said second party on said said plurality of receiving queues of said first queue system and for generating said first of said plurality of responses to said first of said plurality of trouble reports, said first of said plurality of responses being sendable to the second party via said plurality of transmitting queues of said first queue system.

Claims Text - CLTX (39):

statusing said first trouble request and generating at least a first response to said first trouble request, wherein said responding step comprises transmitting said first response to the second party on said second queue of said first queue system, wherein said first response is receivable by the second party on said corresponding second queue of said second queue system.

Other Reference Publication - OREF (1):

MQSeries Version 5, The Next Generation, introduction, overview, sections 1-1 through 4-4; 1997; 8 pages.